

Claims

[c1] Having thus described the preferred embodiment, the invention is now claimed to be:

Fig. 1 1. A light emitting device, comprising:
a nitride compound, for providing at least one of blue and ultraviolet emission;
an epoxy, embedded with a phosphor, mounted to the nitride compound; and
a frame including a surface having an uneven portion contacting the epoxy.

[c2] 2. The light emitting device as set forth in claim 1, wherein the compound includes one of binary compound materials, ternary compound materials, and quaternary compound materials.

[c3] 3. The light emitting device as set forth in claim 2, wherein the nitride compound is one of a group II through group VI-nitride compound.

[c4] 4. The light emitting device as set forth in claim 3, wherein the nitride compound is a group III-nitride including GaN.

[c5] 5. The light emitting device as set forth in claim 1, further including:
a substrate, the nitride compound and the epoxy being mounted to the substrate.

[c6] 6. The light emitting device as set forth in claim 5, wherein the substrate includes sapphire.

Fig. 2 [c7] 7. The light emitting device as set forth in claim 1, wherein the uneven portion is a designed surface.

[c8] 8. The light emitting device as set forth in claim 1, wherein the phosphor converts the at least one of the blue and the ultraviolet emission from the nitride compound to a visible light, which is emitted from the frame.

Fig. 3 [c9] 9. The light emitting device as set forth in claim 1, wherein the frame further includes a smooth portion, substantially none of the phosphor embedded epoxy contacting the smooth portion.

Fig. 4 [c10] 10. A system for converting light from a first range of wavelengths to a second range of wavelengths, comprising:
a semiconductor;

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a phosphor embedded epoxy contacting a first end of the semiconductor; and
a frame contacting the phosphor embedded epoxy.

[c11] 11. The system for converting light from a first range of wavelengths to a second range of wavelengths as set forth in claim 10, wherein:
the first range of wavelengths includes blue/ultraviolet light; and
the second range of wavelengths includes visible light.

[c12] 12. The system for converting light from a first range of wavelengths to a second range of wavelengths as set forth in claim 10, wherein:
the first range of wavelengths is greater than about 10 nanometers and less than about 500 nanometers; and
the second range of wavelengths is greater than about 400 nanometers and less than about 800 nanometers.

[c13] 13. The system for converting light from a first range of wavelengths to a second range of wavelengths as set forth in claim 10, wherein the semiconductor includes:
a substrate;
a nitride compound, for providing at least one of blue and ultraviolet emission, mounted on a first end of the substrate, the phosphor embedded epoxy being mounted on a second end of the substrate.

[c14] 14. The system for converting light from a first range of wavelengths to a second range of wavelengths as set forth in claim 13, wherein the nitride compound includes one of binary compound materials, ternary compound materials, and quaternary compound materials.

[c15] 15. The system for converting light from a first range of wavelengths to a second range of wavelengths as set forth in claim 13, wherein the substrate is sapphire.

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[c16] 16. The system for converting light from a first range of wavelengths to a second range of wavelengths as set forth in claim 10, wherein the frame includes a designed surface, substantially all of the phosphor embedded epoxy contacting the designed surface.

[c17] 17. A method of manufacturing a solid state lamp, comprising:
mounting a phosphor embedded epoxy to a first end of a semiconductor including a

nitride, which provides at least one of blue and ultraviolet emission; and mounting the first end of the semiconductor to a frame via the phosphor embedded epoxy.

[c18] 18. The method of manufacturing a solid state lamp as set forth in claim 17, further including:
creating a designed surface on the frame, the second end of the semiconductor being mounted to the designed surface.

[c19] 19. The method of manufacturing a solid state lamp as set forth in claim 17, further including:
attaching an electrical contact to the semiconductor die.

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